High-Chip Polarization Extinction Ratio Modulator

Overview

An ultra-high Extinction Ratio of 60-dB on-chip electro-optical modulator based on silicon serially-coupled micro-ring structure is reported and successfully applied in a fiber-optic distributed acoustic sensing system for the first time, achieving pico-strain level sensitivity. In this work, we present the design, fabrication, and characterization of a TFLN Mach-Zehnder modulator (TFLN-MZM) with high extinction ratio (ER). The fabricated modulator. On-Chip Silicon Electro-Optical Modulator with Ultra-high Extinction Ratio for Distributed Optical Fiber Sensing Xiaoqian Shu, Zhuo Cheng, Lingmei Ma, Bigeng Chen, Caiyun Li, Chunlei Sun, Maoliang Wei, Shaoliang Yu, Lan Li, Hongtao Lin, and Yunjiang Rao X. Bulky acousto-optical modulators (AOM) as one of the key devices in DAS have been used for many years, but their relatively large. A high performance compact silicon photonics polarization splitter is proposed and demonstrated. The splitter is based on an asymmetric directional coupler. High extinction ratios at the through and drop ports of the polarization splitter are achieved by using an on-chip TE-pass polarizer and a.

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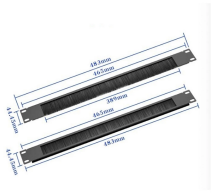


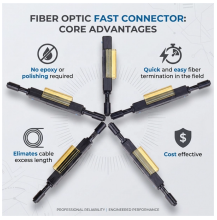
This modulator is engineered to optimize its performance for photonic circuit applications by offering a high extinction ratio, low insertion loss, and compact footprint.

We have successfully prepared six polarization states using a combination of thermo-optic and electro-optic modulators, with an average polarization extinction ratio exceeding 30.6 dB.

A polarization splitter with a high extinction ratio and a short coupling length is essential for efficient, compact and nanoscale silicon photonics integrated circuits.

We propose and experimentally demonstrate a polarization beam splitter (PBS) with excellent performance in terms of ultrahigh extinction ratio and ultralow insertion loss.

The Si optical modulator equipped with simple, compact, and low-loss integrated polarizers has a high extinction ratio and characteristics comparable to those of LNs and ...

	Ultra-high extinction ratio (ER) optical modulation is crucial for achieving high-performance fiber-optic distributed acoustic sensing (DAS) for various applications.
	An ultra-high Extinction Ratio of 60-dB on-chip electro-optical modulator based on silicon serially-coupled micro-ring structure is reported and successfully applied in a fiber-optic distributed acoustic ...
	Thin-film lithium niobate (TFLN) modulators are expected to play a key role in next-generation optical communication systems. In this work, we present the design, fabrication, and...
	A 5th-order coupled microring electro-optical modulator with PIN structures is proposed and experimentally demonstrated on SOI integrated photonics platform. Ul
	Here, the authors demonstrate an ultra-high extinction ratio electro-optical modulator on silicon and its application for DAS.

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